

LOGIC

TRM120

TRM – ROTARY MOWERS



OPERATORS MANUAL

WM1-TRM120

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TRM120 Serial Number:

Date of Purchase:

INTRODUCTION

With the purchase of your **LOGIC TRM - ROTARY MOWER** you have made an excellent choice.

This machine should give first class service for a long time, if used correctly, and maintained as described in this manual.

Fitted with an easy to start engine it has been designed to cope with a wide range of conditions. The Logic TRM - Rotary mower incorporates easy height adjustment, range of engine options and three grass cutter blades for maximum life and durability. The Cutter blades have built in deflectors to clean the blade and create a sucking action, all resulting in a better cutting finish

The mower incorporates a clutch to ensure the engine is protected and that the drive belts have a longer life.

The mower deck is constructed from 4mm steel for added strength; all fittings are of high quality to ensure years of trouble free use.

There are different wheel options available for the TRM - Rotary Mower

Engines used may vary, but all are accompanied by the maker's usual warranty.

If after reading this manual there are any queries, please get in touch as we will be pleased to help.

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Safe use of all-terrain vehicles (ATVs) in agriculture and forestry

Agriculture Information Sheet No 33

Introduction

This information sheet gives advice on the safe use of ATVs. It covers the two main types used in off-road working in agriculture and forestry, which are:

- sit-astride ATVs: any motorised vehicle designed to travel on four low-pressure tyres on unpaved surfaces, with a seat designed to be straddled by the operator and handlebars for steering control. They are intended to be used by a single operator with no passenger. However, this type also includes ATVs intended for use by a single operator, but with a special seat for a passenger behind the operator. These vehicles are generally called ATVs in agriculture, quad bikes in leisure use and all-terrain cycles (ATCs) in forestry;
- sit-in machines: side-by-side mini-utility vehicles, usually with a steering wheel, where the driver sits in a conventional seat and there is generally seating for one or more passengers. These are often called ATVs in both agriculture and forestry.

The ATVs covered by this sheet are those designed for off-road use only. However, agricultural, horticultural and forestry users can register an ATV as a 'Light agricultural vehicle' for limited on-road use in connection with their business (see 'Road use').

Accidents

Both types of machine are designed to cope with a wide variety of terrain types, including steep slopes, but if used outside their safe operating parameters they can very rapidly become unstable. This is why most ATV accidents involve overturning.

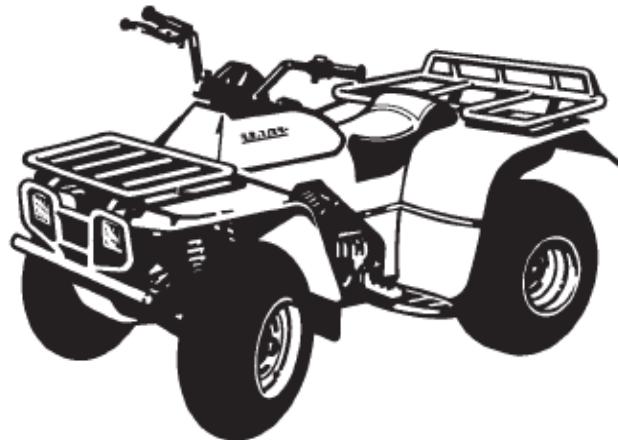
On average, two people die each year in ATV accidents. Non-fatal accidents are estimated to amount to over 1000 serious injuries per year. The underlying causes of accidents were usually one or more of the following:

- lack of structured training and/or experience;
- incorrect/lack of protective clothing;
- excessive speed;
- carrying a passenger or an unbalanced load;
- tipping on a bank, ditch, rut or bump;
- a steep slope combined with other factors, eg ground or load conditions;
- towing excessive loads with unbraked equipment.

Route planning and stability

Most accidents with these machines have occurred where they have either been driven on new routes over steep ground for the first time, or have been carrying or dragging destabilising loads. When travelling over rough terrain, get to know your own ground and stick to planned routes where possible. Walk new routes if necessary to check for hidden obstructions. Allow for changes in ground conditions and for the destabilising effect of loads or attachments.

Sit-astride ATVs (quad bikes/ATCs)



REMEMBER - GET PROPERLY TRAINED AND ALWAYS WEAR HEAD PROTECTION

Training

Under the Provision and Use of Work Equipment Regulations 1998 (PUWER), there is a legal requirement for employers to provide adequate training, and to ensure that only employees who have received appropriate training in their safe use, including the use of any towed equipment or attachments, are permitted to ride ATVs. The same requirements apply to the self-employed. HSE regards training provided by recognised training providers as being 'adequate' for the purposes of PUWER.

You can get details of suitable training courses from franchised ATV dealers, manufacturers' websites, EASI (European ATV Safety Institute), the Forestry Commission and LANTRA. Training is also available from agricultural trainers and colleges accredited by these bodies.

Protective clothing

More than half of all ATV riders have been thrown off at some time. As these machines are not fitted with either a cab or roll bar, your only protection is what you wear.

- **Head protection is vital.** The majority of ATV fatalities in the UK in the last five years have involved head injuries. No one wearing a helmet has ever been killed in an ATV accident in the UK. **You should always wear a helmet when riding an ATV.** Helmet types considered suitable for ATV operations, depending on the circumstances of use, are motorcycle helmets to BS 6658: 1985 or UN ECE regulation 22.05, equestrian helmets to BS EN 1384: 1997, including specialist ATV helmets, cycle helmets to BS EN 1078: 1997 and mountaineering helmets to BS EN 12492: 2000. All helmets should have a chinstrap and be capable of being used with suitable eye protection. The type of helmet chosen should be based on an assessment of the circumstances in which the ATV will be used, eg the types of surface travelled over and anticipated speeds. The harder the surface and higher the speed the greater the degree of protection needed. **NB: Forestry helmets and industrial hard hats are not acceptable for any ATV operations.**
- Wear clothing that is strong and covers your arms and legs. Gloves are useful for protection and to keep hands warm in cold weather for good control of the ATV. Wear sturdy, ankle-covering footwear, eg boots or wellingtons that are strong, supportive and have good wet grip.
- Protect your eyes from insects and branches with either a visor or goggles.

Passengers

Never carry a passenger on a sit-astride ATV unless it has been designed for, and is suitable for, that purpose. The long seat is for operators to shift their body weight backwards and forwards for different slope conditions, **not** for carrying passengers. Passengers on specially adapted ATVs must wear a safety helmet. Do not carry a passenger in a trailer behind an ATV as any movement can make the machine unstable, particularly with independent rear suspension and trailers with axles wider than the ATV.

Safety checks and maintenance

Off-road use is especially harsh on equipment so it is essential to carry out safety checks and maintenance in accordance with the manufacturer's recommendations. In particular, pre-ride safety checks should **always** include:

- tyre pressures. These are low, eg around 2-7 psi, so even a 1 psi (0.07 kg/cm²) difference in pressure can cause vehicle control problems.

Use a gauge that is designed for measuring and displaying low pressures - usually supplied with the ATV;

- brakes and throttle. Check that the brakes give a safe straight stop and that the throttle operates smoothly in all steering positions. Brakes can have a relatively short life in farming or forestry environments and need frequent cleaning, regular adjustment and proper maintenance.

Safe driving methods

ATVs are rider-active machines and so rider positioning is vital to operate them correctly. That means the position of the rider on the machine needs to be changed depending on the terrain and motion. Riders must have the ability to move and balance the momentum of the ATV with their own body weight. Plan routes (and review the plan if the route is used regularly) to assess risks.

The following advice is no substitute for formal training.

- Most ATVs have no differential and so do not handle in the same way as other machines. This means that when you turn, the ATV tries to keep going in a straight line.
- When cornering on an ATV with no differential or with the differential lock engaged, where your body weight needs to be positioned depends on how sharp the corner is and on how fast you are going. Correct body position allows you to transfer weight to the outside of the turn through the footrests while maintaining balance with the torso. This lets the inside wheels skid slightly allowing the ATV to make the turn properly.
- When riding across a slope, keep your weight on the uphill side of the ATV.
- When going downhill, slide your weight backwards, select a low gear and use engine braking, reducing the need to use the brakes.
- When going uphill, it is important to review the route before starting the climb. Move your weight forwards and maintain a steady speed. It is important to shift your body weight forwards as much as possible. If necessary stand up and lean forward, keeping both feet on the footrests at all times and always maintain momentum.
- Avoid sudden increases in speed, as this is a common cause of rearward overturning accidents, even from a standing start on flat ground where there is good grip.
- **Never put your foot onto the ground to stabilise an ATV when riding,** but shift your weight across the ATV away from the imbalance.
- **Always read the owner's manual.**

Trailed equipment and loads

Ensure all riders know the manufacturer's recommended towing capacity and drawbar loading limit. Always operate within these requirements. Remember that your ability to control the ATV by your body movements will be considerably reduced when carrying a load or towing a trailer.

- When selecting traile equipment look for:
 - over-run brakes;
 - a swivel hitch drawbar;
 - bead lock rims on wheels;
 - a low centre of gravity and a wide wheel track;
 - a long drawbar; and
 - attachment points for securing a load.
- Check the weight ratio between your ATV and its traile load. This needs to be assessed for each operation. As a general guide, on level ground, braked traile equipment can be a maximum of four times the unladen weight of the ATV. For unbraked traile equipment the maximum should be twice the unladen weight. These loads should be reduced when working on slopes, uneven ground or poor surface conditions. Follow the manufacturer's advice for your particular machine.
- Weight transfer is also important. Stability and resistance to jack-knifing is improved if some load is transferred onto the ATV's drawbar. Approximately 10% of the gross weight of the loaded trailer is recommended, but this should not exceed the manufacturer's drawbar loading limit. Remember that weight transfer can change dramatically when you start going up or down hill.
- When selecting mounted equipment, make sure it is within the manufacturer's approved weight limit, with a low centre of gravity, and controls which are easy to operate but do not create a hazard. Where equipment is added to one end of the machine, add ballast at the other end to maintain stability.
- Loads carried on racks must be well secured, eg with ratchet straps, and be evenly balanced between the front and rear, except where they are deliberately altered to aid stability when going up or down a slope.
- Only tow a load from the hitch point. Loads towed from other points such as the rear rack have caused sudden rear overturning even on slight slopes or with slight acceleration. Ropes or chains should not be used to drag a load where they can become caught on a wheel. This may lead to entanglement with the brake cable, causing unexpected braking.

Using sprayers

- Pesticides should be used in accordance with the *Code of Practice for the safe use of pesticides on*

farms and holdings (the Green Code PB3528) published by DEFRA - currently being revised. (Available from DEFRA Publications, ADMAL 6000, London SW1A 2XX Tel: 08459 335577.)

- Spraying equipment should comply with the recommendations in BS EN 907 for the filling position (1.5 m above the ground and 0.3 m from the edge of the sprayer), systems (an induction bowl or closed transfer system) and provision of clean water (normally at least 15 litres).
- When buying a sprayer look for a low centre of gravity and internal baffles to reduce liquid surge which will improve stability when turning on slopes.
- ATVs should only be used with rear-mounted spray booms or other equipment that reduces the risk of pesticide exposure to the operator.
- Do not hold a spraying lance while riding your ATV, as two hands are needed for safe control.

Accessories

Beware of the potential dangers of accessories which are not approved by manufacturers, eg home-made gun racks and boxes. Either use accessories supplied/approved by manufacturers or seek their advice as to the suitability of those sourced elsewhere. Any weight added above the centre of gravity will decrease the ATV's stability.

Children

- Never carry a child as a passenger. It is illegal and will reduce your ability to control the ATV.
- Children under 13 are prohibited from using an ATV at work. Over 13 they should only ride ATVs of an appropriate size and power, after formal training on a low-power ATV.
- **Check and adhere to the manufacturer's minimum age recommendations for your ATV.** The ratio of a child's weight to that of the ATV is significant, as weight transfer is the key to safe handling.
- Always refer to the owner's manual and warning labels on the machine.

Roll bars, lap straps and weather cabs

- Roll bars are not recommended for sit-astride ATVs. Research has shown that they are more likely to increase injuries by obstructing the rider, either when thrown off or when jumping off during an overturn. This causes the rider to fall to the ground alongside the ATV and increases the likelihood of injury. PUWER does not require roll bars where they would increase the overall risk.
- Lap straps should not be fitted. They prevent active riding and would be potentially lethal without a full cab or roll cage.

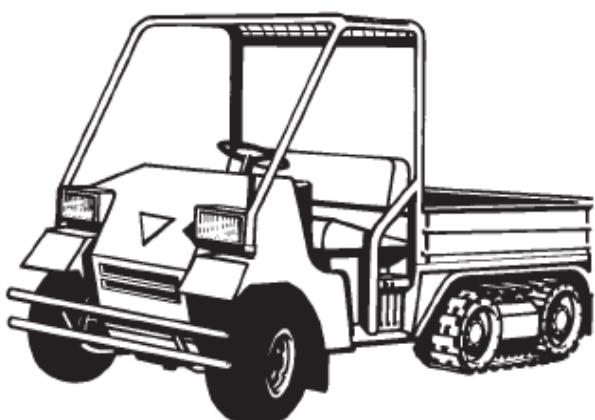
- Weather cabs restrict a rider's ability to jump clear in an overturn. The rider is likely to be crushed within the cab unless it is strong enough to withstand the forces involved. Carefully assess the risks for your particular conditions of use before fitting any such structure and consult the manufacturer for information.

Road use

For road use, ATVs and trailers have to comply with the Road Vehicles Construction and Use Regulations 1986 and the Road Vehicles Lighting Regulations 1989 (both enforced by the police) and be licensed in the appropriate class. They do not require an MOT and the maximum permitted speed is 20 mph. The minimum age for drivers is 17 and they need a Category B licence.

Sit-in ATVs

Sit-in ATVs include the Mule, Rhino, Argocat, Scot-Track, Gator, Ranger, Hiler, Goblin and other similar machines. They all have conventional sit-in seats and the driver does not use weight transfer to steer or control stability, although load balance is important in this respect. They range from machines designed for purely rough terrain to utility vehicles, which are also commonly used fully off-road.



Training

The legal requirements for training are the same as for the sit-astride ATVs. You should request advice on training from your suppliers, the training providers previously mentioned or, for forestry operations, from the Forestry Commission.

Rollover protection and seat belts

The requirements for these machines are quite different to those of sit-astride ATVs.

- Where there is a risk of the machine rolling over, PUWER requires an employer to fit some device

to protect employees (the self-employed have the same duty to themselves). This would normally be a cab, rollover frame or roll bar. Such a structure could either be provided as part of the original machine or, if added afterwards, should be CE marked and approved by a recognised test body.

- Restraining devices such as seat belts should be fitted and worn by the driver and passengers where a roll bar or cab is fitted.
- Where a machine is amphibious and used on deep water as opposed to marshland, then the seat restraints (and possibly roll frame) could increase the overall risk rather than reduce it. In this case, do not use seat restraints while on the water. Assess the risk from the roll frame according to its design and the likelihood of trapping the occupants if the machine should sink.
- If there is a risk of overturning, employees at work who are carried in the rear of sit-in ATVs should be protected by rollover protection and seat restraints.
- Children should only be carried in these vehicles if they are in a passenger seat and wearing a properly designed and fitted seatbelt.

Parking

If you have to park on a slope, always park across it unless it is too steep. Accidents have occurred where machines have run down slopes because of poor brake maintenance or application, particularly while they are being loaded, and movement or the increase in weight sets the machine into motion.

Further information

HSE priced and free publications are available by mail order from HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA Tel: 01787 881165 Fax: 01787 313995 Website: www.hsebooks.co.uk (HSE priced publications are also available from bookshops and free leaflets can be downloaded from HSE's website: www.hse.gov.uk/.)

For information about health and safety ring HSE's Infoline Tel: 0845 345 0055 Fax: 02920 859260 e-mail: hseinformationservices@natbrit.com or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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This symbol means **WARNING** or **CAUTION** Personal safety or damage will be at risk if these instructions are ignored. Most accidents are caused by neglect or carelessness; Avoid needless accidents by following the safety precautions listed below.

2

IN THE INTEREST OF SAFETY: DO NOT

1. DO NOT – Operate the mower without all the correct guards fitted.
2. DO NOT - Tamper with engine unless stated by Engine manufacturer.
3. DO NOT – Touch any moving or rotating parts during working conditions
4. DO NOT – Stop the engine immediately after heavy use, ensure engine is run at idle for a short period to allow drive belts and engine to cool down, this will reduce wear.
5. DO NOT – Operate the mower without suitable ear and eye protection
6. DO NOT – Allow passengers.
7. DO NOT – Leave machine un-attended while operating
8. DO NOT – Run the engine in an enclosed area, exhaust gases contain Carbon Monoxide and are fatal if inhaled.
9. DO NOT – Operate the mower on excessively steep slopes.
10. DO NOT – Operate the mower unless all safety features are fitted to the mower and are used correctly
11. DO NOT – Operate the mower until you have read and understood the entire operators manual
12. DO NOT – Wear loose fitting clothing, to avoid catching on parts of the machine
13. DO NOT – Try to remove blockages while the engine is running. Ensure engine is stopped and blades have stopped rotating before any servicing/repairs are carried out.
14. DO NOT – Operated the mower in Dark conditions unless suitable artificial light is used.
15. DO NOT – Operate if excessive vibration occurs, stop the machine immediately and view maintenance chart.
16. DO NOT – Climb on the mower.

3

IN THE INTEREST OF SAFETY: DO

1. DO – Follow Engine manufactures guidelines.
2. DO – Ensure all spectators are a safe distance away when operating.
3. DO – Carry out regular servicing and checks before use.
4. DO – Clear cutting area from potential damaging components e.g. stones etc.
5. DO – Reduce speeds when working on hillsides or rough terrain
6. DO – Be aware components can be hot after operation
7. DO – Follow any towing guidelines stated by towing vehicle manufacturer.
8. DO – Show some caution when filling the tank with petrol, especially if engine components are hot.
9. DO – Ensure all safety decals are in good condition, replace any that are damaged.
10. DO – Keep hands and feet away from rotating blades
11. DO – Ensure mower is in transport position before transporting to and from the workplace



The above decals should be located on your TRM120. If any of the above decals are not located on your TRM120 or are damaged in any way contact Logic for some replacement decals before use.

5

TRANSPORTING & LIFTING

Ensure the vehicle used to lift and transport the TRM120 has the necessary lifting and loading capacity. Follow all vehicle manufactures guidelines for lifting. Unladen weights are clearly marked on the Manufactures plate attached to the TRM120 deck. Check the lifting weight complies with the vehicle lifting limits

When lifting the TRM120 for transporting / delivery purposes always ensure to locate the lifting straps on each of the four corners ensuring the straps/chains are all the same length before lifting, or if using forklift tines ensure the mower is secure on the tines before lifting.

6

OPERATING PRINCIPLES

The **LOGIC TRM ROTARY MOWER** is designed to give safe and dependable service if operated according to instructions and intended use.

Read and understand this manual before operating the mower, as failure to do so could result in personal injury or equipment damage.

The amount of grass or weeds to be cut dictates the forward speed; slow forward speeds give better results in most cases. Ensure you follow the procedure below.

NORMAL FORWARD SPEED (1 kph - very heavy use - 10 kph - very light use)

Start off in the slowest speed possible; ensure the mower is working efficiently with the engine set at maximum RPM and not labouring. (If this is not possible due to very heavy cutting conditions, raise cutting height of blades and be prepared to go over twice with machine set lower on 2nd pass, leave at least 24 hours in between 1st and 2nd cut to allow grass to dry out) Increase forward speed until the RPM of the engine starts to slow down (This is working the engine too hard for conditions) - slow down, let the engine regain full RPM and go through the same process but stop short of speed which made engine labour previously. It is important always to listen to note of engine to ensure engine and mower are working efficiently, slow down or stop once engine starts to labour.



When moving from normal working conditions to heavier cutting, it may be evident that the engine dies down and loses revs. **SLOW DOWN IMMEDIATELY** to allow the engine revs to build up again to normal working speed if engine does not recover stop the engine immediately by using the kill switch cord remove the blockage and follow all engine starting procedures. Follow the procedure detailed above in "Normal Forward Speed". Expected forward speed will be much lower in heavy conditions.



FAILURE TO DO THIS WILL RESULT IN CLUTCH SLIP AND ULTIMATELY SEVERE DAMAGE TO THE CLUTCH AND DRIVE BELTS.

7.1 – BEFORE USE INSPECTION:

Ensure that all nuts, bolts and fittings are secure before using the TRM120.

Ensure the tyres are in good condition and have the correct pressures.

Ensure the swivel hitch is in good condition; replace any worn or damaged parts.

7.2 – ATTACHMENT TO TOWING VEHICLE

Any suitable vehicle can tow the Logic TRM120 normally by its 50mm swivel hitch coupling. Ensure the hitch is securely attached to the towing vehicle and the handle indicator points to "OK" before moving the vehicle.

Use the raise and lower levers to lift the TRM120 clear of the ground. Drive around for a short period of time in a wide open space to ensure you become familiar with the operating width and handling of the machine.

7.3 – ADJUSTING THE MOWER

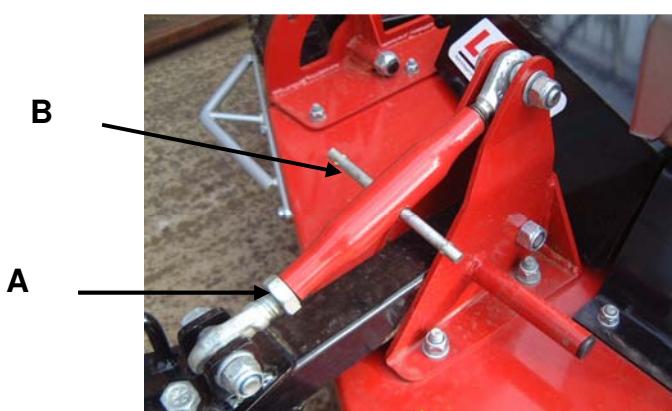


MOWER ENGINE MUST BE SWITCHED OFF WHEN ADJUSTING THE MOWER!

DRAWBAR PITCH ADJUSTMENT

The hitch attachment height of the towing vehicle can vary. To accommodate this adjustment, a screw link is located on the drawbar. This should be lengthened or shortened so that the cutting deck is horizontal to level ground. (This ensures a better cutting efficiency)

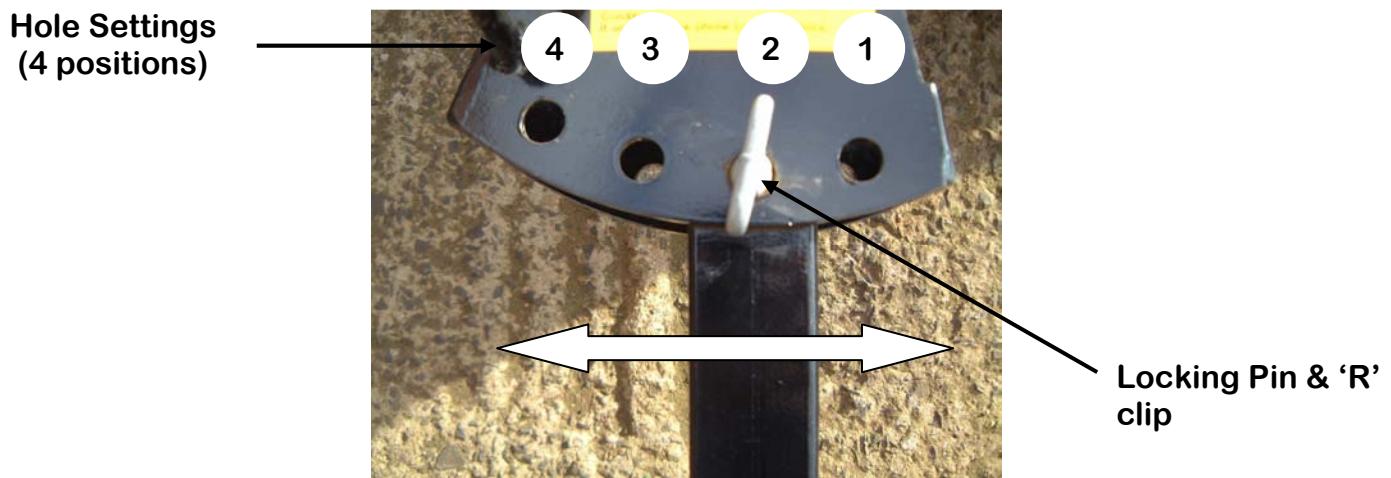
1. Unlock the locking nut (A)
2. Lengthen the link to lower the front of the deck or shorten to raise the deck, by turning handle (B).
3. Once the deck is level, re-tighten locking nut (A).



QUICK OFFSET DRAWBAR

Remove the 'R' clip and locking pin; slide the drawbar to the desired position and reposition the locking pin into the securing hole as shown below. There are 4 hole positions as shown below that allow the mower to move to an 'Off set' position. Hole position 1 (Zero offset) would mean the mower would follow the towing vehicle straight behind, if the position was then changed to hole 4 this would mean the mower would move by approx 700mm to the right hand side (Based on the below image)

Example: Setting number 4 is used the mower will be
700mm 'Offset' to the right →



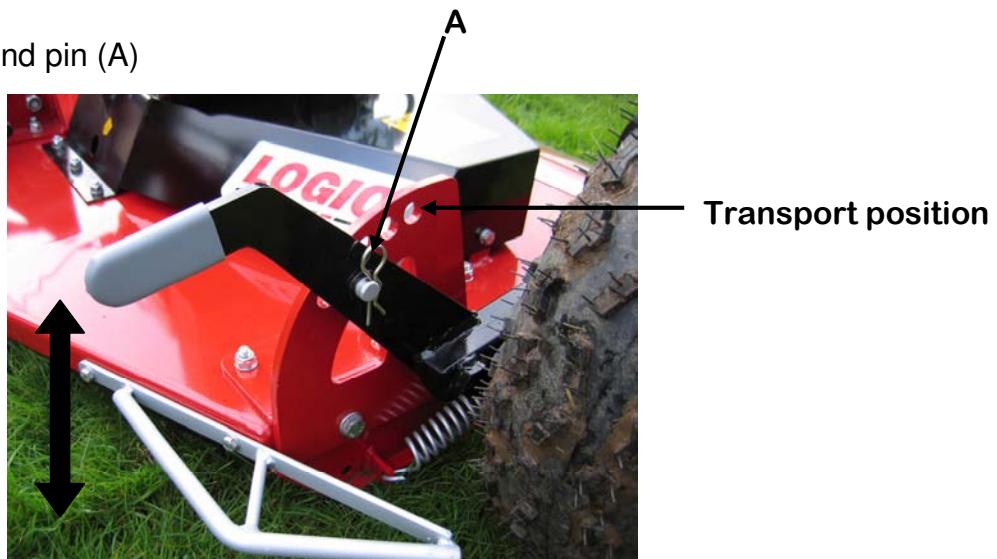
MOWER CUTTING HEIGHT

The main cutting height adjustment is achieved by using the spring assisted handles on either side of the deck.

There are 5 cutting heights available, including transport position (See below diagram)

1. Remove 'R' clip and pin (A)
2. Raise or lower the spring assisted lever to the new cutting height replace the pin in the correct hole (Ensure both height adjusters are on the same setting, never operate the mower with different height settings) Ensure the deck runs parallel to the ground see drawbar adjustment section in this manual.

3. Replace 'R' clip and pin (A)



STARTING THE ENGINE



READ AND UNDERSTAND THE ENGINE OPERATORS MANUAL BEFORE USE



OBSERVE ALL SAFETY PRECAUTIONS; KEEP HANDS AND FEET AWAY FROM THE ROTOR AND OTHER MOVING PARTS.



KEEP SPECTATORS AT A SAFE DISTANCE

1. Make sure there is a gap between the blades and the ground / crop
2. Select an area clear of loose debris.
3. Set the engine choke (if necessary) and suitable idling speed with the throttle.
4. Place one foot on top of the deck body to give a firm and balanced position. Pull the starter cord firmly, allowing the cord to return to the housing slowly (one or two strong pulls should start the engine).
5. After a few seconds warming up at idling speed, move the throttle to the factory pre-set max engine RPM.



If the throttle is altered to increase the engine R.P.M beyond the recommended level, the guarantee will become invalid. In addition to this, cutting efficiency will be reduced, fuel consumption will increase and excessive vibration could be caused, resulting in a potential danger to personnel and damage to components.

ELECTRIC START

Push button electric start engine options can be supplied if required. Simply hitch up the mower, connect the electrical supply plug to the ATV socket and press the ignition button to start the mower. Observing all the precautions mentioned above in 'Starting the mower'.

REMOTE THROTTLE CONTROL

When a remote throttle control option is fitted, normally to the rear carrier frame of an ATV or other suitable position on the towing vehicle, it gives the operator the facility of controlling the mower engine from the operating position.

THROTTLE PARK

The mower deck is fitted with a throttle park. To use the throttle park clip the throttle to the bracket as shown below.

⚠ DO NOT USE THE THROTTLE PARK DURING OPERATION. THE THROTTLE SHOULD BE POSITIONED NEAR THE OPERATOR DURING WORKING CONDITIONS. THROTTLE PARK IS FOR STORAGE WHEN THE MOWER IS NOT IN USE ONLY



STOPPING THE ENGINE

When stopping the mower after a period of heavy use. Run the machine at half working speed in a stationary position for at least 4 minutes to allow the drive belts/clutch to cool down. Shut the throttle down to lowest RPM and switch off engine.

1. Show caution to hot parts e.g. engine exhaust, belts etc after engine is switched off.
2. When the mower has cooled down (Min1hr after last used) Ensure all grass has been removed from engine cooling fins, drive belt area and rotors before operating again.

TRANSPORT POSITION

When the mower is being moved from one site to another it is advisable to raise the deck to the highest position (See section called 'mower cutting height')

The engine must be stopped and the blades at a standstill before adjusting to the transport position. (Transport position is the highest deck setting available).

Remove any crop particles from the deck before leaving the field. Never move from one site to another with the engine running. Ensure the mower drawbar has been adjusted to allow the mower to run directly behind the towing vehicle and is not in an offset position

NB: TRM – Rotary mower is not road legal, and should not be used on public roadways.

If you have any specific questions regarding mowing or adjusting the TRM120 to suit your conditions please contact **Logic**

All servicing should be carried out by qualified mechanics. Contact your Local dealer for more details.

Maintenance Schedule

Maintenance Operation:	Hourly	Daily	Weekly	Seasonal
Engine (See Engine manufacturer's manual)	SEE ENGINE MANUFACTURES MANUAL			
Remove excess crop gathered on deck	●	●	●	●
Remove excess crop wrapped around rotors	●	●	●	●
Visual check to ensure nothings loose	●	●	●	●
Grease Drive Pulleys		●	●	●
Grease Height Adjuster		●	●	●
Grease Rear Roller		●	●	●
Grease Rotor Bearings		●	●	●
Drive belt tension		●	●	●
Tyre Pressures		●	●	●
Rotor Bearing inspection			●	●
Wheel Bearing Inspection			●	●
Oil coupling			●	●
Coupling Bush Wear			●	●
Check All Fasteners are tight and intact			●	●
Safety projectile deflectors front/rear (inspection)			●	●
Safety Decals intact			●	●
Safety Guards Intact			●	●
Sharpen Rotor Blades				●
Check Metal Fatigue				●
Clutch Wear / Function				●

Maintenance History

Service Date:	Service Performed:	By:

ENGINE MAINTENANCE

Refer to engine manufacturer's manual, for servicing and maintenance of the engine.

EXCESS CROP BUILD UP

Remove all crop deposits from the deck and engine area. Build up of crop deposits could result in heat build and fires. **NB:** Disconnect the spark plug lead.

Remove any crop that is wrapped around the rotors on the underside of the deck, as shown below. Raise the deck to its max height to assist access to the rotor shafts.



VISUAL CHECK

Make a visual check around the mower, check for missing / loose parts or damaged / worn components. All faults must be either repaired or replaced.

DRIVE BELT ADJUSTMENT

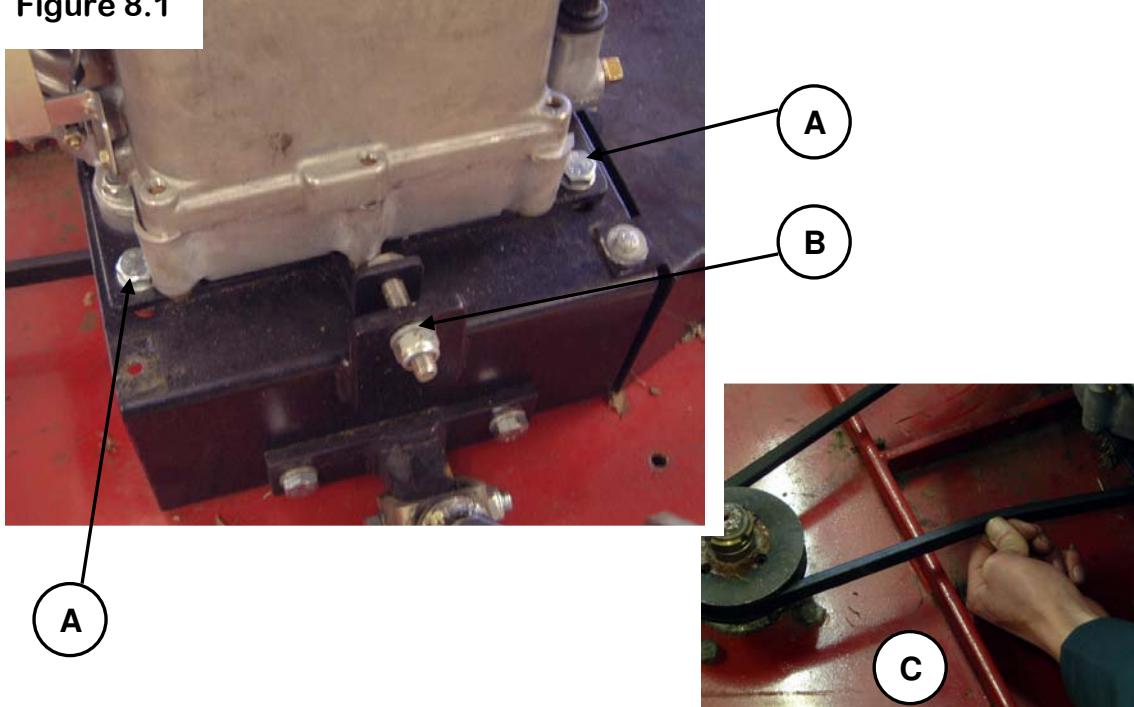
! Always stop and switch off the engine and wait for the rotor blade movement to stop before carrying out any inspection or adjustment. CAUTION some Drive belts / Drive pulleys could be hot after use

1. Remove drive belt covers by removing the 3x mounting bolts on each guard.
2. Slacken 4 x engine mounting plate bolts, so the plate is free to move (A) See figure 8.1
3. Tighten the tensioner bolt (B) until the tension on the belt allows one and a half the belts thickness in deflection ether side of the belt centreline (C). Belt deflection should always be tested on the longest and central part of the belt.
4. Replace drive belt covers.

NB: New drive belts stretch a little after the first few hours of use; so be sure too check belt tension after the first few hours of use. (DO NOT OVER TIGHTEN DRIVE BELTS)

Replace any worn or cracked drive belts. Only use Logic specified drive belts as replacements.

Figure 8.1



TYRE / PRESSURES

WHEEL/TYRE TYPE	RECOMMENDED PRESSURE
CARLISLE AT 20 x 7 - 8	7 - 10 PSI
KINGSTYRE 16 x 6.50 - 8	28 PSI (Max)



DO NOT EXCEED RECOMMENDED TYRE PRESSURES

1. Remember that temperature affects pressures: in cold weather the pressure needs to be higher than in hotter temperatures.
2. Never adjust the pressure immediately after driving because driving heats up the tyres.

There are many individual causes of tyre troubles. However, the three abuses which will cause most problems and the greatest costs are under-inflation, overloading and speeding. When you check the tyre pressures also look for bumps and bulges in the side of the tyre or tread. Check the tyres for cuts, slits or cracks, nails or foreign objects embedded in the side of the tyre or tread. Check the tread for excess wear. Replace or repair any defect or fault with tyres before use.

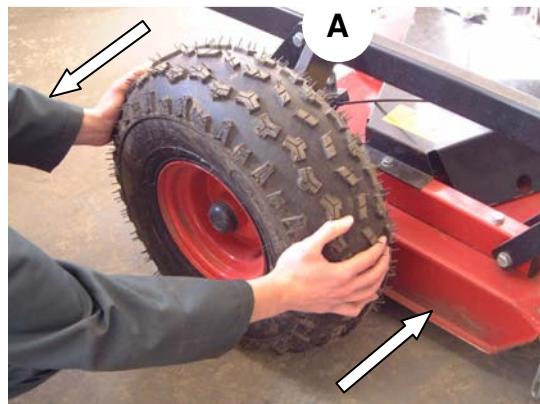
ROTOR BEARING INSPECTION

NB: Disconnect the spark plug lead.

Rotate each rotor shaft by hand and feel for any roughness in the bearings. Also try to pull the shaft from side to side if any movement is found check all mounting and blade bolts are tight and repeat the test. If symptoms persist strip down the rotor-housing unit and inspect bearings.

WHEEL BEARING INSPECTION

Jack one side of the mower body up, so the wheel is just off the ground. Rotate the wheel by hand, and check the wheel alignment. To check the bearings, try to move the wheel from left to right and feel for any play in the bearings (A), ensure the wheel-locating bolt is tight before you start and follow any jacking procedures. If any play is found remove the wheel and inspect bearings. Replace any faulty bearings.



OIL COUPLING / COUPLING BUSH WEAR

Check coupling for signs of damage or wear, swivel the coupling 360 degrees and check that the yellow bushes aren't too worn. Replace any worn or damaged parts. Oil the coupling regularly

GENERAL INSPECTION

Check the mower to ensure all fasteners are tight and all safety guards / chains are intact and fitted securely. Check all safety-warning decals, Replace any defected guards or decals.

SHARPEN ROTOR BLADES

To remove the individual blades:

1. Disconnect the spark plug.
2. Block the blade to prevent it from rotating by using a block of wood. (A)



3. Remove the blade bolt (B)
4. Remove the blade, replace or sharpen the blade.
5. Reinstall the blade ensure the blade-securing bolt has a torque setting of 60ft/lbs.
6. Inspect any fasteners before re-assembly, replace if necessary.
7. Reconnect spark plug.

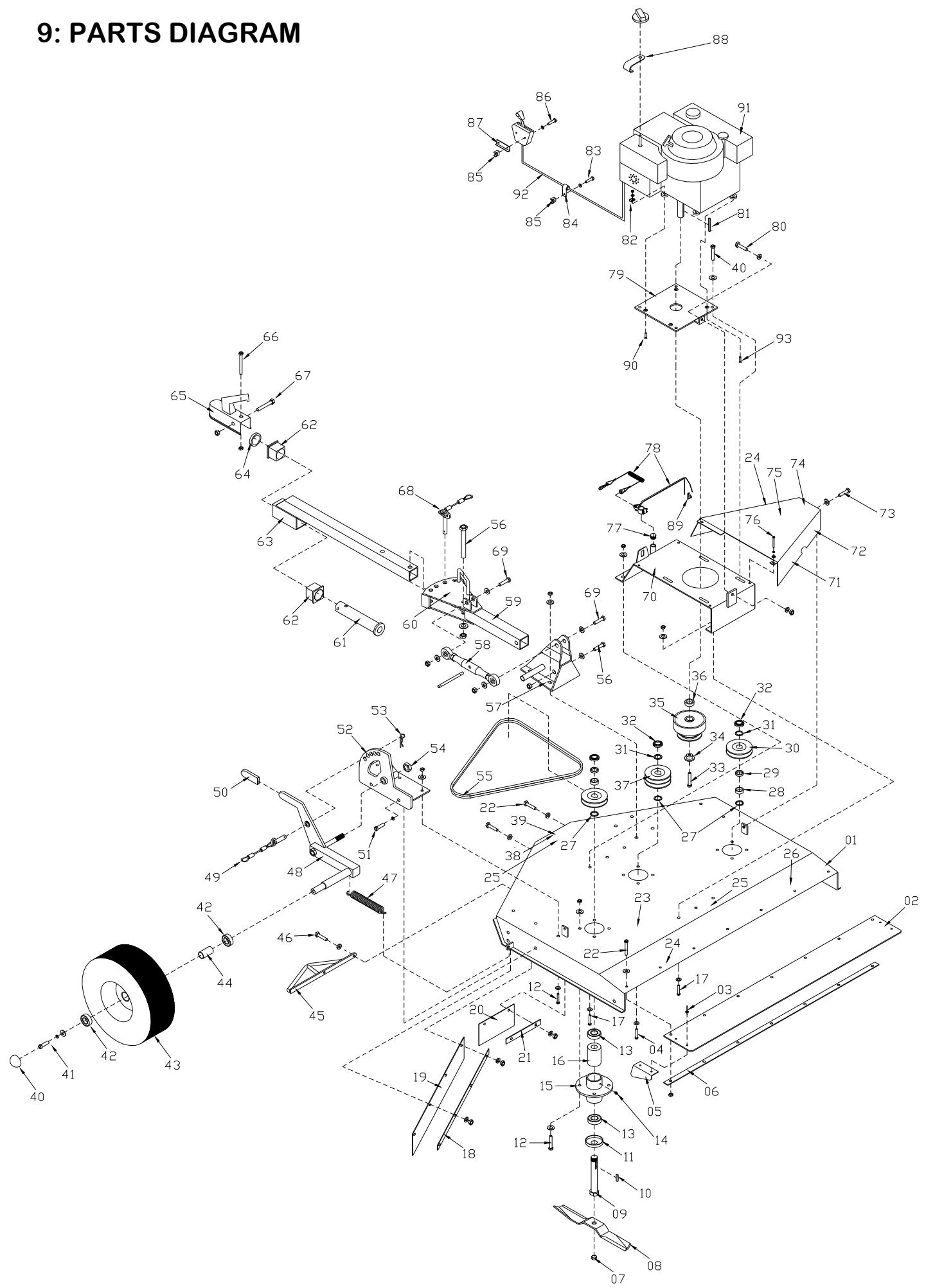


FOR REPAIRS BEYOND THE MINOR ADJUSTMENTS LISTED ABOVE CONTACT YOUR LOCAL DEALER

SPECIFICATIONS

	TRM120B12***	TRM120H13***
Max machine width	(CARLISLE) :1790mm (KINGSTYRE) : 1770mm	
Max machine height	(CARLISLE): 730mm (KINGSTYRE): 690mm	
Max machine length	2190mm	
Max cutting width	1200mm	
Cutting range	(CARLISLE): 20mm – 160mm (KINGSTYRE): 20mm – 120mm	
Weight	(CARLISLE): 168kg (KINGSTYRE): 166kg	(CARLISLE): 173kg (KINGSTYRE): 171kg
Hitch:	50mm swivel coupling	
Drawbar	Adjustable and Offset facility (approx 700mm Offset)	
Raise / Lower	Manual spring assisted lift handles	
Wheel / Tyres	(CARLISLE AT 20 x 7 – 8): 4-10 Psi (KINGSTYRE 16 x 6.50 – 8): 28 Psi	

9: PARTS DIAGRAM



Item	Part Number	Description
01	TRM120-01A	Mower Deck
02	TRM120-14	Rear Deflector Flap
03	FRP06014	Rivet Mono 6.5mm X 14mm (2mm X 9.5mm Panel)
04	FSH12035	S/Screw Hex Head M12 X 35
05	TRM120-09L	Rear Discharge Deflector L/H
05	TRM120-09R	Rear Discharge Deflector R/H
06	TRM120-22	Rear Clamping Plate
07	S216-1013	Self Locking Nut
08	S216-1012	Blade (Lg412)
09	S216-1026	Spindle
10	LRM120-41	Key Outer Pulley
11	S216-1025	Bearing Cover
12	FSH10030,FWF10,FNN10	S/Screw M10 X 30, Flat Washers, Nyloc Nut
13	MF120-1048	Bearing
14	TA102-03	Grease Nipple
15	S216-1024	Hub
16	S216-1023	Spacer
17	FSH10025,FWF10,FNN10	S/Screw M10 X 25, Flat Washers, Nyloc Nut
18	TRM120-23	Clamp plate front Outer
19	TRM120-12	Deflector front Flap: End
20	TRM120-13	Deflector front Flap: Centre
21	TRM120-24	Clamp plate front Centre
22	FSH08025,FWF08,FNN08	S/Screw M8 X 25, Flat Washers, Nyloc Nut
23	WP05,FRP03010	Manufacturers Plate Universal, Rivet Pop 1/8 X 3/8
24	WS01	Sticker: Logic – 240 X 75 MM
25	WS146	Sticker: Mower Hazard Sticker
26	WS147	Sticker: TRM120
27	S215-096	Sprocket Spacer Bush 2 MM
28	S215-091	Castor Bottom Collar 12 MM
29	S215-092	Castor Bush 6 MM
30	LRM120-38	Pulley Single V 'B; Section 4"
31	S216-1027	Washer
32	S216-1015	Self Locking Ring Nut
33	FBH716200	Bolt Hex Head 7/16 UNF X 2"
34	LRM123-01	Top Hat Washer
35	TRM120-39	2 Vee Centrifugal Clutch (Purple Springs)
36	LRM123-04	Clutch Spacer 12 MM
37	LRM120-39	Pulley Double V 'B' Section 4"
38	WS36	Sticker: Design Right
39	WS64	Sticker: Ser No: N/Plate 50.4 X 19.1
40	MF120-1054	Dust Cap
41	FSH10025,FWS10 FWR10030	S/Screw M10 X 25, Spring Washer, Repair – Washer
42	MF120-1048	Outer Wheel Bearing
43	WT142	WL/TY 16 X 650 – 8 Kingstyre

Item	Part Number	Description
43	WT210	WL/TY 20 X 700 – 8 Carlisle/Max 4
44	MF120-1063	Spacer
45	TRM120-20A	Guard Rail
46	FSH08030,FWF08,FNN08	S/Screw M8 X 30, Flat Washers, Nyloc Nut
47	TRM120-37	Spring Tension 5.38 MM Dia
48	TRM120-25LA	Axle L/H
48	TRM120-25RA	Axle R/H
49	TRM120-10	Wheel Arm Locking Pin
50	MSU-S100	Sleeve Flat Grey 31.75 MM X 9.5
51	FSH12035,FWF12,FNN12	S/Screw M12 X 35, Flat Washers, Nyloc Nut
52	TRM120-02LA	Height Adjuster Bracket Assembly L/H
52	TRM120-02RA	Height Adjuster Bracket Assembly R/H
53	FCG03064	Clip R3 X 64 MM
54	FNN20	Nut Nyloc M20
55	LRM123-05	Belt V BX49
56	FBH16090,FWF16,FNN16	Bolt M16 X 90, Flat Washers, Nyloc Nut
57	TRM120-05A	Drawbar Mounting Assembly
58	MFG104-15	Turnbuckle
59	TRM120-03A	Drawbar Offset
60	WS82	Sticker: Mfg300 Warning
61	CM100-04	Drawtube
62	CM100-03A	Bush Nylon
63	TRM120-16A	Drawbar Assembly
64	CM100-01A	Thrust Washer
65	C900	Coupling 50 MM H/D Winterhoff
66	FBH12065,FNN12	Bolt M12 X 65, Nyloc Nut
67	FBH12070,FNN12	Bolt M12 X 70, Nyloc Nut
68	TRM120-11	Drawbar Locking Pin
69	FBH16065,FWF16,FNN16	Bolt M16 X 65, Flat Washers, Nyloc Nut
70	LRM120-02A	Engine Mounting Stool
71	TRM120-07L	Transmission Guard L/H
71	TRM120-07R	Transmission Guard R/H
72	WS118	Sticker: Grease Symbol
73	FSH08015,FWF08	S/Screw M8 X 15, Flat Washer
74	WS103	Sticker: Keep Wheel Nuts Tight
75	WS11	Sticker: Mow General Warning
76	FSH08010,FWS08,FWF08	S/Screw M8 X 10, Washer Spring, Washer Flat
77	LRM120-37	Plastic Plug-Kill Switch Mounting
78	LRM126-01A	Kill Switch Assembly
79	S216-013A	Engine Mounting Plate
80	FSH10060,FWF10,FNN10	S/Screw M10 X 60, Flat Washers, Nyloc Nut
81	LRM123-03	Key Engine Pulley

Item	Part Number	Description
82	FCF06	Clip Fix Rubber Lined 6.0mm
83	FSH06020,FWF06	S/Screw M6 X 20, Flat Washer
84	S216-048	Durite Heavy Duty Terminal
85	S216-047	Stadium Clip 21 MM OD
86	FSH06035,FWF06	S/Screw M6 X 35, Flat Washer
87	MFG109-04	Clip Base Plate
88	LRM123-03	Cable Clip
BRIGGS & STRATTON:		
89	ME-S034	Switch Rocker On/Off 12v 6A B/S
90	FSC08035,FWF08,FNN08	Screw C/Sunk M8 X 35,Flat Washers, Nyloc Nut X2
91	EBV121	Engine B+S 12.5hp Recoil Start
92	TRM127-01	Throttle Control 2.7mt Fast/Slow Only
HONDA:		
93	FSC516100,FWF08	Screw C/Sunk Sckt 5/16 X 1", Flat Washer
90	FSC08035,FWF08,FNN08	Screw C/Sunk M8 X 35, Flat Washers, Nyloc Nut
91	EHV131	Engine Honda 13hp Electric Start
91	EHV132	Engine Honda 13hp Recoil Start
92	LRM127-01	Throttle Control 2.7metre
	S216-060A	Battery Lead ATV End (Electric Start Only)

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LOGIC MANUFACTURING PRODUCTS OWNER

This Logic Manufacturing product is guaranteed against faulty workmanship and materials for a period of 6 months from the date of purchase.

On Engine-Powered equipment, the engine manufacturer's guarantee will apply, any claims being subject to their terms and conditions.

All claims must be made in writing within 28 days of the alleged failure.

All claims must be made through the dealer who originally supplied the machine.

Any defective parts must be kept for inspection and if requested, sent to the factory or dealer.

The customer must bring equipment for repair to the dealer.

This guarantee becomes void if unauthorised modifications have been made, or if parts not manufactured, supplied or approved by Logic Manufacturing have been fitted to the machine.

We accept no liability for normal wear and tear, misuse or abuse, or where recommended maintenance has not been carried out.

All guarantee work must be authorised by Logic manufacturing prior to any work being done. Work carried out without our consent may not be reimbursed.



DECLARATION OF CONFORMITY

93 / 44 EEC

LOGIC MANUFACTURING LTD

Foundry Industrial Estate
Bridge End
HEXHAM
Northumberland

Product Type: **TRM120 – ROTARY MOWER RANGE**

Covered By Technical File Number: **CE – LRM120**

Serial Number:

Standards and Regulations Used:

The Supply of Machinery (Safety) Regulations 1992

HSE Guide Lines on ATV Equipment (Agric Sheet No. 11)

HSE Guide lines On Agricultural Mowers (Agric Sheet No.25)

Place of Issue: **United Kingdom**

Name of Authorised Representative: **P. G. RIDLEY**

Position of Authorised Representative: **RESEARCH & DEVELOPMENT MANAGER**

Declaration,

I declare that as the authorised representative, the above information in relation to the Supply / manufacture of this product, is in conformity with the stated standards and other related documents following the provisions of 93/68EEC directives

Signature of Authorised Representative

Date: **02/04/07**